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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,784	01/16/2002	Bahadir Erimli	95-507	2631
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			EXAMINER DIVECHA, KAMAL B	
			ART UNIT	PAPER NUMBER
			2151	

DATE MAILED: 10/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/046,784

Applicant(s)

ERIMLI, BAHADIR

Examiner

KAMAL B. DIVECHA

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 20 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20050920</u> | 6) <input type="checkbox"/> Other: _____  |

**Response to Arguments**

Claims 1-7 are pending in this application.

**Information Disclosure Statement**

The information disclosure statement (IDS) submitted on September 20, 2005 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

The 35 U. S. C. 101 rejection with respect to claims 5-7 addressed in the previous office action has been withdrawn because claims 5-7 specify an apparatus, namely a channel adapter.

Applicant's arguments filed September 20, 2005 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Consequently, memory utilization within the channel adapter is optimized based on utilizing a single table having multiple entries for respective linked lists identifying respective attributes of the transmitted work queue entries) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

A Linked List is defined as a list of nodes or elements of a data structure connected by pointers (Microsoft, Computer Dictionary, Fifth Edition).

Based on the interpretation above, Avery explicitly discloses each and every limitation of the claimed invention. Avery teaches utilizing first and second fields in table entry enabling formation of first and second linked lists identifying a transmit sequence and an

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acknowledgement sequence of the transmitted work queue entries (see fig. 7: item #754 is an address map, a data structure used to associate work queue entries; wherein a particular work queue entry is identified by a queue pair pointer in an address map entry, such as entry 758, and further the work queue entry 703 also contains a pointer to a DMA scoreboard 770 that tracks outstanding requests to ensure that all outstanding requests are completed, col. 9 L45-65).

Therefore the table entries are connected by pointers forming a linked list that identified both the transmit sequence and an acknowledgement sequence (fig. 7 and col. 9 L57-65).

In response to applicant argument that Avery neither discloses (1) an entry having a work queue entry field that specifies a transmitted work queue entry, where the entry includes first and second link fields each configured for referencing another entry in the table (in other words “a pointer”); (2) forming a first linked list specifying a transmit sequence of the transmitted work queue entries from the first link fields, or (3) forming a second linked list specifying an acknowledgement sequence of the transmitted work queue entries based on the second link field (Remarks page 5-6), Examiner respectfully disagrees and further states that Avery discloses each and every limitation of the claimed invention (see below).

Avery explicitly discloses an entry having a work queue entry field that specifies a transmitted work queue entry, where the (1) entry includes first and second link fields each configured for referencing another entry in the table (fig. 7 item #760, a plurality of entries, each with a field 756, 758 that references another entry in the table; fig. 7 item #766, a pointer that references another entry in the table to work queue entry 703; fig. 7 item #715, a second pointer that references to a scoreboard that tracks acknowledgement sequence); (2) forming a first linked list (i.e. a first pointer referencing to an entry) specifying a transmit sequence of the transmitted

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work queue entries from the first link fields (applicant admitted that “In particular, .....each address map entry includes a pointer that identifies a work queue entry.....”, page 5 of remarks, and based on the interpretation of a linked list provided above, the process therefore forms a linked list (simply by referencing another entry by a pointer) that identifies a work queue entry, i.e. transmit sequence); and (3) forms a second linked list (a list referenced by a second pointer) specifying an acknowledgment sequence of the transmitted work queue entries based on the second link field (fig. 7 item #770 and 715, where 715 is a pointer that references to 770 for tracking acknowledgement, see col. 9 L57-65).

Therefore Avery does disclose, teach and suggest the process of tracking of any transmit sequence for the work queue entries, let alone tracking acknowledgement sequence of the transmitted work queue entries (see col. 9 L57-67).

As such, the rejection is maintained.

### **DETAILED ACTION**

Claims 1-7 are presented for examination.

### **Claim Rejections - 35 USC § 102**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1 and 3-7 are rejected under 35 U.S.C. 102(e) as being by anticipated by Avery (U. S. Patent No. 6,611,883 B1).

As per claim 1, Avery discloses a method in a channel adapter configured for communications with a server network system, the method comprising: first storing, in a table configured for storing multiple entries, an entry having a work queue entry field that specifies a transmitted work queue entry, the entry including at least first and second link fields each configured for referencing another entry in the table, the first storing step including storing in the first link field a first entry identifier for one of the transmitted work queue entry and a subsequently transmitted work queue entry relative to the transmitted work queue entry, wherein the first link entry identifiers in the respective first link fields form a first linked list specifying a transmit sequence of the transmitted work queue entries; detecting an acknowledgement for at least a first of the transmitted work queue entries stored in the table and generating in the table a second linked list specifying an acknowledgement sequence of the transmitted work queue entries by second storing, in the second link field of the entry corresponding to the first transmitted work queue entry, a second entry identifier based on the detecting step, the second entry identifier specifying one of the first transmitted work queue entry and an entry having received a subsequent acknowledgement relative to the detected acknowledgement (fig. 7 item #754, 703, 705, 770 and col. 8 L43 to col. 11 L25 and col. 12 L1-45).

As per claim 3, Avery discloses the process of tracking the tracking section (checking second linked list) to determine transmitted work queue entries awaiting acknowledgement (col. 10 L48-60 and col. 9 L58-65).

As per claim 4, Avery discloses the process of tracking (detecting or receiving) acknowledgement according to Infiniband protocol (col. 10 L48-59, fig. 3 and fig. 9B item #922).

As per claim 5-7, they do not teach or further define over the limitations in claims 1, 3-4. Therefore, claims 5-7 are rejected for the same reasons as set forth in claims 1, 3-4.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Avery (U. S. Patent No. 6,611,883 B1) in view of Heddes et al. (hereinafter Heddes, U. S. Patent No. 5,311,509).

As per claim 2, Avery discloses the process of storing the entry in a send queue table (col. 6 L49-60, fig. 3 item #311, col. 10 L24-26 and col. 10 L60 to col. 11 15), however Avery does not explicitly disclose the process of storing the entry in the send queue table by a free buffer manager. Heddes discloses a buffer management system comprising a free buffer manager for controlling the memory space (col. 5 L1-40 and fig. 8 item #112 and fig. 9). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Avery for the purpose of storing the entry in the send queue table by a free buffer manager. One of ordinary skill in the art would have been motivated because it would have controlled the memory space and/or buffers.

**Additional References**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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- a. Avery, U. S. Patent No. 6,622,193 B1.
- b. Xie et al., U. S. Patent No. 6,662,213 B1.
- c. Craddock et al., Pub. No.: US 2003/0018828 A1.
- d. Craddock et al., U. S. Patent No. 6,789,143 B2.
- e. Avery, U. S. Patent No. 6,813,653 B2.
- f. Muller et al., U. S. Patent No. 6,453,360 B1.

**Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAMAL B. DIVECHA whose telephone number is 571-272-5863. The examiner can normally be reached on Flex schedule 8 hr days (10.00am-6.30pm).



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zarni Maung can be reached on 571-272-3939. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



October 17, 2005.



**ZARNI MAUNG**  
SUPERVISORY PATENT EXAMINER